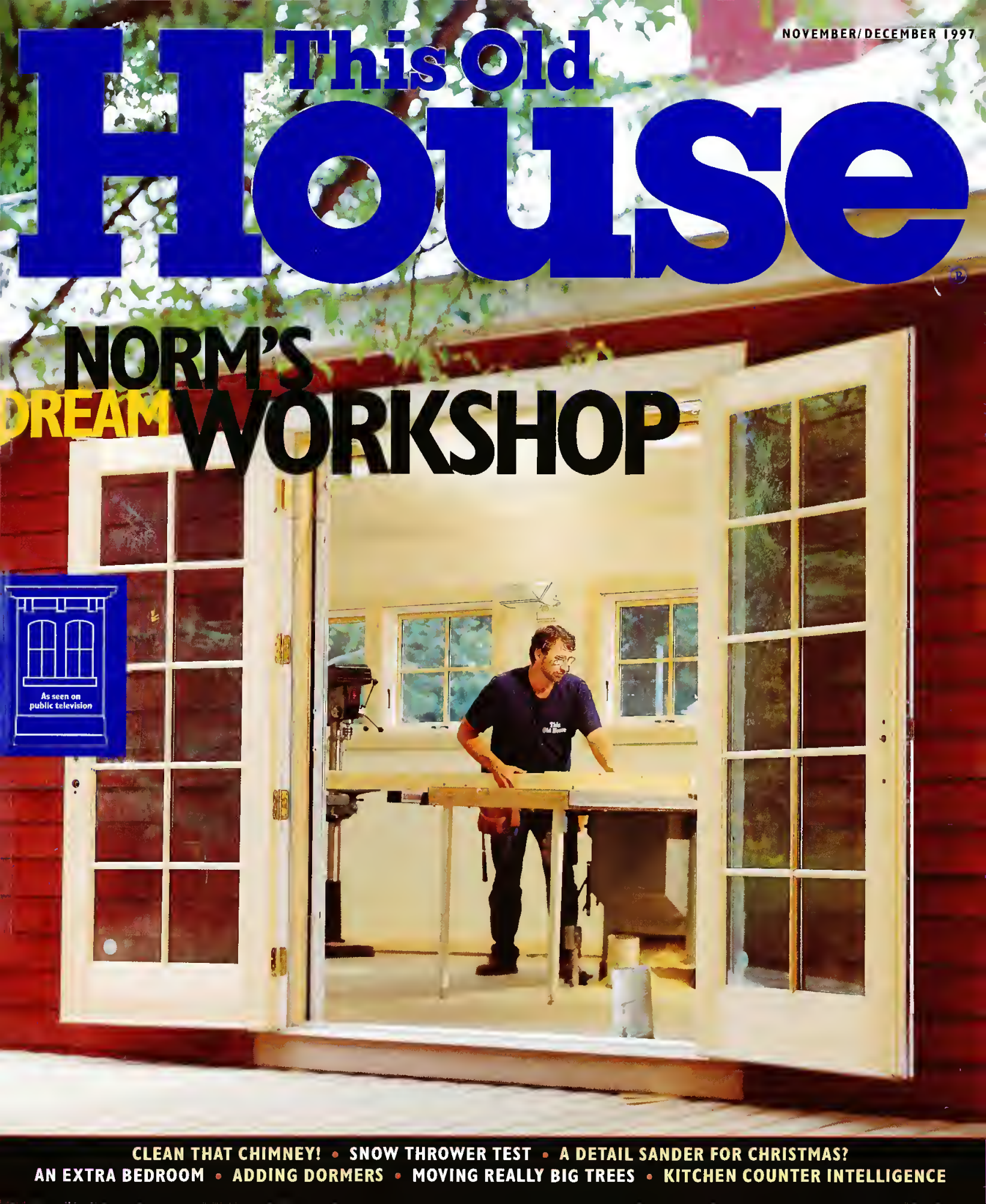
NOVEMBER/DECEMBER 1997

This Old House

NORM'S DREAM WORKSHOP



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AN EXTRA BEDROOM • ADDING DORMERS • MOVING REALLY BIG TREES • KITCHEN COUNTER INTELLIGENCE

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GETTING IN AND OUT OF YOUR PICKUP

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At Home With...

Home Enthusiast:
JENNIFER CAPASSO
Marketing Services Manager
Thermador

Home Base:
Long Beach, CA

What's the best thing about your home?
I can close the door and it becomes a refuge, a place to really escape

What makes you feel "at home?"
I feel at home when I'm surrounded by the things that I love. Things that create a really comfortable, "put your feet up" type of environment.

What kind of projects do you do in your home?
Right now I am renting my house in Long Beach, but I always seem to be painting or spackling, or doing something in the garden. When I was in graduate school, I bought a house in Long Beach and completely renovated it. I later resold it. Now when I feel the urge to do a major project, I'll go over to a friend's and rototill their garden

What would your dream home be like?
I can give you an exact answer to that, because I actually have a picture of my dream house on my desk. It's in Cross River, New York: a 3-story brick colonial. It's in a beautiful, open setting, plenty of room for visitors, plenty of room for entertaining. I grew up nearby, and I've coveted this house for years.

If we came by your house on the weekend, where would we find you?
In the garden, or the kitchen, or maybe running between both. I also like to entertain and usually get everyone involved in the preparation. So, maybe you'd catch a group of us cooking, talking, eating.

Condo or Colonial, old or new, home is more than just bricks and mortar, and home enthusiasts are more than just homeowners. Which is why *This Old House magazine* is a wellspring of ideas for homeowners and homeowners-to-be.

Whether we're inspiring dreams or making dreams a reality, *This Old House* is synonymous with everything we love about home. It's this passion, this involvement, and this brand affinity that makes our audience such a powerful and vital market for this magazine—and for you.

Sincerely,

Thomas M. Ott

Thomas M. Ott
Vice President and Publisher

This Old House MAGAZINE

Leading The Journey Home

This Old House MAGAZINE

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THANKS TO HOME DEPOT THIS MARRIAGE STARTED OUT ON A FIRM FOUNDATION.

May 2, 1996

Dear Home Depot—

Having all the answers about home improvement is one thing — but who would've thought we'd ever come to you for wedding advice.

Let me explain.

We wanted to build a deck at our new lake house so we could get married there. Thanks to your employee John Norland, we pulled it off. From suggesting the right wood, to recommending a speed square that saved us time and money. John was great.

We literally drove the last nail hours before the wedding and everything went off without a hitch (sorry, the deck looks terrific, and John's advice made all the difference. Next to the ministers, he was the one person we couldn't have gotten married without.

Sincerely,

Dawn Gibson

P.S. Pictures are enclosed.

RECEIVED MAY 6

project sketches

½ Row

The finished deck

The "BIG" day

the site

SMINK-GIBSON WED AT LAKE CYPRESS SPRINGS

Mt. Vernon TX—The former Miss Dawn Sminkand Gary Gibson were wed Saturday, March 23, 1996 outdoors on the site of their soon to be completed lake home located on Lake Cypress Springs, near Mt. Vernon Texas.

The couple invited 100 friends and family members over for an afternoon of boating, skiing, fishing and swimming, then surprised everyone with an impromptu

...ony was Justice ...d his wife, Myrn...

...r of Mr and Mrs ...na, Texas. She is ...uan Hotel. Mr Gib... ...ne Richards Group, ...y located in Dallas ...d by Sandman's Bar

After the wedding

Progress

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7 PM

7 PM

Inspiration

THE HOME DEPOT

CUSTOMER NAME Dawn & Gary Gibson

LOCATION Mt Vernon, TX PROJECT deck

EMPLOYEE NAME John Norland store # 0550

DATE 5/14/96 ARCHIVE NO 96-3247

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The Poster Handsaws

From a reversible gent's to a Japanese keyhole to a French flush cut, a well balanced, sharp toothed handsaw can turn your arm into a wood-devouring shark. By Jeff Taylor P 140

FEATURES

Norm's Shop of Dreams — 98

For years fans have been asking Norm Abram what his ultimate workshop would look like and what he would put in it. Finally, the fantasy comes true in our fall dream house. Oh, the tool lust!

By Brad Temley

Mighty Monticello — 104

Thomas Jefferson's experiment, building the quintessential American house, was nothing less than a magnificent success. So if you're looking for good ideas to use in your own house, start here.

By Jack McClintock

Finishing School — 112

Classes in home repair offer more than great ways to save on contractor bills—they give you courage

By Jeanne Huber

An American Craftsman — 114

A former pro basketball player turned plaster master, Lorna Kollmeyer is the modern embodiment of 15th century Italy's stuccotori, *who resurrected the plaster molding techniques of ancient Rome.*

By Walt Harrington

Wright House, Wrong Roof — 120

Into one of Frank Lloyd Wright's most famous houses a little rain did fall. For decades. Now the repair bill for Wingspread's new roof is more than $2 million

By Craig Canine

Got Snow? — 122

Our real-life test of eight hearty snow throwers. In Vermont. For an entire winter. Brrrr!

By William G. Scheller

This Very Old House — 128

The history of every house is as complicated and romantic as the families that have lived there. Meet the Crehores, the Browns, the Manns, the Beechers and the Downes. For nearly 300 years, they lived in—and changed—our Milton, Massachusetts, dream house

By Daniel S. Levy

The Instant Extra Bedroom — 136

Carve out a new room with a wall that goes up in hours, costs little more than $200 and—when you need your old room back—can be taken down in minutes

By Jeanne Huber

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BACK IN THE WAY P 128

TOOL SCHOOL P 122

COVER PHOTOGRAPH BY KELLER & KELLER

PHOTOGRAPHS, TOP TO BOTTOM, BY BILL WHITE, KELLER & KELLER, THE BRUNE FAMILY, ALISON ROSA

(Continued on page 10)

SAFETY MARRIES PERFORMANCE. THEY ELOPE.

Are these two well-suited for each other? Do opposites really attract? Put yourself in a Saab 900 SE on a freeway entrance ramp with a semi bearing down in your side mirror. Touch the accelerator and the turbocharged 185-horsepower engine makes a powerful argument for this marriage. Now imagine the same Saab in a tight hairpin turn on the sheer-drop side of a mountain. Feel the car clench the road? Of course you do. Because its center of gravity is positioned near your hips, where you first sense lateral movement. Performance and safety, always hand in hand. With you, a devoted chaperone.

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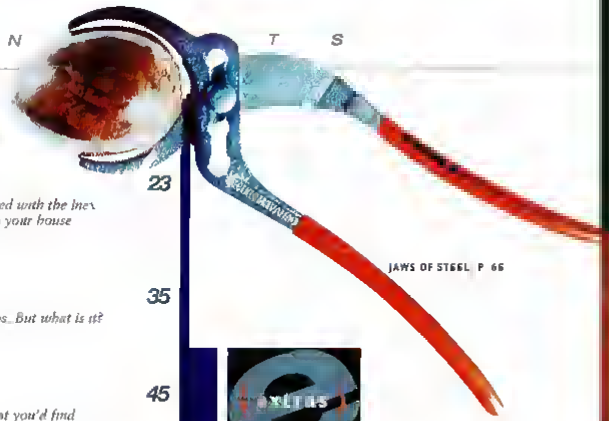

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There's only one thing you can say when faced with the inexplicably dumb things previous owners did to your house

By Jeanne Marie Laskas

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Solid surface is synonymous with countertops. But what is it?

By Cynthia Sanz

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If your house could blow its nose, this is what you'd find

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Like a ferret, detail sanders nose into awkward places

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The crud in your flue may be a firestorm waiting to ignite

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Get more space and more light—and make your house look a lot better—for half the price of the average addition

By Dennis Weddick

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What do you do when a lovely old maple stands in the way of progress? Start packing—and watch out for the roots

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PHOTOGRAPHS, TOP TO BOTTOM: BY J.M. COOPER; MELLER & KELLER; PERLIN SMITH

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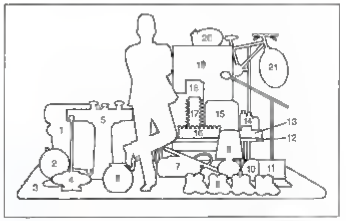
A Cardmember Goes Shopping

JERRY SEINFELD

{Comedian, Author, Cereal Lover}



1 Chair	8 Shoes	15 Television
2. Globe	9 Lamp	16 Fez Collection
3. Rug	10. Basketball	17 Cereal Bowls
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5. Sink	12 Coffee Table	19. Fridge
6. Goldfish	13 Video Game	20. Satellite Dish
7 Vacuum	14 Cleansers	21 Bike & Stand

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{You can find items like Jerry's at these establishments.}

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The Sports Authority	Rand McNally Travel Store
RadioShack	Hammacher Schlemmer
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{And if you're in Jerry's neighborhood–New York City:}

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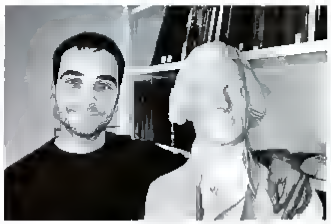
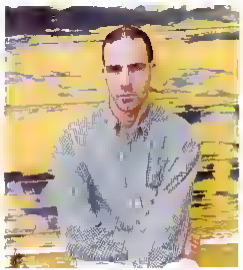
Heroes of the American Revolution are hardly a popular subject in England, where, according to photographer **GRANT DELIN**, ' Some people still call America the colony and want the tax money " So when *This Old House* hired the London born Delin to shoot Thomas Jefferson's mountaintop home (see "Monticello"), he read up on the third U S president 'He was a true Renaissance man," Delin says "Monticello was the first American house to depart from English style architecture." To portray Monticello as it would have looked in Jefferson's time, Delin used only natural light for his pictures Now a resident of New York City, Delin says that this, his first assignment for *TOH*, recalls happy memories of Delin Wall Fashions, a full-service hardware store his family operates in east London "At age 12, I was the paint-mixing boy I made all the special colors," Delin says "And I could tell how much wallpaper a room needed just from looking at it " When business was slow, Delin practiced photography inside the store with a manual Olympus camera his grandmother gave him In 1992, he won the Kodak Young Photographer of the Year contest, a European competition



The architectural details of the Milton home reminded **DANIEL S LEVY** (writer, Milton house history) of a museum collection "In one room there was Georgian-era raised pine paneling, and in the next there were Federal style little columns and delicate dentils." A reporter for *Time* magazine since 1986, Levy has a master's degree in historic preservation from Columbia University As an editor, Levy worked on *Time*'s "American Visions," a special issue about art in the United States, written by critic Robert Hughes He also helped install the Metropolitan Museum of Art's American Wing, the project included the reassembly of a loggia rescued from Louis Comfort Tiffany's abandoned, fire-damaged house Another of Levy's interests, studying the life of adventurer Morris Cohen—a Polish born Jewish immigrant to England who became a general in the Chinese army in 1931—takes the form of his recently published biography, *Two-Gun Cohen* (St Martin's Press)

In photographing plaster ornament maker Lorna Kollmeyer (see "Plaster Master"), **STEFANO MASSEI** discovered a " whole new fascinating world—I never knew there was an artistic process like hers " Massei, a native of Tuscany who moved to the United States in 1981, found the plaster moldings serendipitously relevant to what he calls his "own personal quest to study sizes and shapes through still-life photography " When not on assignment for clients such as Williams-Sonoma, Hugo Boss, the Gap, Esprit, and Japan's World Company, Massei also likes to make black-and white portraits of friends—and strangers. "When I see a face with character, someone who intrigues me, I take a picture," he says "It could be anyone ranging from a bum to a celebrity " Massei now lives in San Francisco and operates Studio Massei along with his wife, Karen, who styles his photographic shoots



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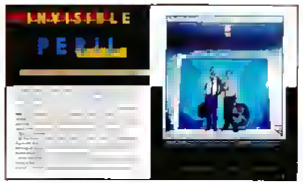

POISONS AMONG US

The stack effect of air movement within a home ["Invisible Peril," Sept./Oct. 1997] has been a concern for at least 90 years—even before the Model T appeared. In its February 1907 issue *The Inland Architect & News Record* reported: "In the autumn, winter and spring months, and during the nights, even in summer...the air in our houses is warmer than that contained in the soil beneath. The house acts like a suction pump in such cases, sucking up the poisonous gases and germs with which it is infested." The article advised the installation of flues to vent basement air out above the roofline.

SETSY GUFLACZ *Western Springs, IL*

DÉJÀ VIEW

Are videos of the television show available for purchase by mail?

FRANK FULTON, *St. Paul, MN*

You can order individual episodes (or entire series) of relatively recent *This Old House* broadcasts from WGBH Educational Foundation by calling 800/255-9424. Choose from among the Napa (California), Nantucket (Massachusetts), Salem (Massachusetts), Savannah (Georgia) and Tucson (Arizona) projects. On the phone, you will need to provide the project name or episode number announced at the end of the broadcast (information available from the Audience Services department at WGBH, 617/492-5706).

DIDN'T CATCH THE FLUE

Once, some time ago *This Old House* installed a stainless-steel chimney liner in a brick chimney. I need more information on this product. Can you tell me whom to contact?

ROYCE LARSEN *via E-mail*

Flexible stainless flue liners for chimneys prevent flue gases from condensing and damaging both mortar and bricks. For more information, contact Z-Flex Inc., 20 Commerce Park North, Bedford, NH 03110-6911, 800/654-5600.

LOW THRESHOLD

We recently purchased an antique front door for our house. It is in pretty good shape except at the bottom, where the ½-inch-thick oak veneer has bubbled up from the base. What would be the best way for me to reglue it?

STEVEN R. CARTER, *via E-mail*

To flatten bubbles and curls, Tom Silva recommends applying hot, moist towels (heated in a microwave). Change them often until the veneer is pliant, being careful not to soak the wood. Then clamp the veneer flat. After it's dry, apply a two-part exterior glue between the veneer and the substrate and reclamp. When clamping, always protect the surface with a piece of scrap wood.

GLAD BAGS

I have been a very big fan of *This Old House* for many years, along with Norm's *New Yankee Workshop*. I also subscribe to *This Old House* magazine and just recently received the *Source Book*. In the introduction, I noticed a mention of Spag's hardware store. Back in the late 1970s and mid-1980s, I delivered products to the store on Route 9 in Shrewsbury, Massachusetts, from here in New Jersey. "Spags No-bags" is one of a kind. Keep up the great work.

BRUCE BARMORE, *Plainfield, NJ*

HELP

LETTERS TO THE EDITOR
Got a problem? We can help. Got a gripe? We're listening. Have a happy experience with a supplier or manufacturer? Share the kudos. Contact us via E-mail at Letters@toh.pmeinc.com or write to Letters, *This Old House* magazine, 1185 Avenue of the Americas, New York, NY 10036.

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BEYOND THE NORM

This summer we began a renovation that included adding a great room to our 1929 house. We would have loved to have Norm, Steve and the gang take on this project with us, but we knew it couldn't happen. But thanks to our building supplier, who gave us an advertising display, we were able to have Norm on hand in spirit to oversee the operation. Norm's "presence" was the secret to a very successful project.

THOMAS R. SKAGGS, *Champaign, IL*

WHITE AND WRONG

I have recently had the interior of my house painted—linen white." Is this a standard color and will paint with the same name from another manufacturer match?

CAROLYN SPIELER, *New York, NY*

Linen white is a common name for an off white color, but it is unlikely that paint from one manufacturer will match the color from another. Different companies use mixing bases that vary slightly in brightness, so test for a match by swabbing some of the new paint on top of a swatch of the old and comparing them once they have dried. This technique may save you a trip back to the store to have your paint adjusted.

PORCH PONDERING

As for why porch ceilings are painted blue ["Extras," May/June, July/August], here in the Southwest the Pueblo people have for centuries painted the front door and window trim of their adobe homes blue to ward off evil spirits. Of course, the blue is also a lovely contrast to the brick color of the adobe and reflects the sparkling blue cloudless sky.

JEANNE CAMERON WASHBURN, *Albuquerque, NM*

With 60 years of proof backing him, my grandfather Finley Ralph of Clifton, Texas, swears that a blue ceiling keeps the mud daubers away—as his old porch will attest.

MIKE TAYLOR, *San Antonio, TX*

My Ohio grandparents told me that their porch ceiling was painted light blue to mimic the sky, not to repel flies. Apparently they (and others as well, I presume) believed that painting a ceiling blue improved the distribution of sunlight in what might have otherwise been a dark porch.

KATHY LE CONTE LUPTON, *Paris, IL*

Editor's note: Blue may give the impression of a sunny day, but white has a higher light reflectance (which will give you brighter adjoining interior rooms). Because immaculate white paint is a relatively recent invention, our forebears may have preferred crisp blue ceilings to the dingy off-whites that were available back then.

ROLLING RECYCLABLES

In "From Warehouse to Your House" [July/August] you said that pallets are used once or twice, then shipped to a landfill. Not so at Target Products in Burnaby, British Columbia. Target, where I work part-time, hires two to four guys to come in every Sunday and repair pallets dating back to 1993 or earlier. Pallets cost $15 each, and a company can save a lot of money by repairing them instead of shipping them off to wood-chip heaven.

MIKE DAUNCEY, *Surrey, British Columbia*

SEAL APPEAL

I was intrigued by the waterproof, highly reflective roof-coating material shown on *This Old House*'s Tucson series. Would you let me know the name of the product and who sells it? I'm really tired of having my roof hot-mopped with tar every four to five years.

ANNE WRIGHT, *Tacoma, WA*

Mirrorseal is available from Innovative Formulations Corp., 1810 South Sixth Avenue, South Tucson, AZ 85713-4608, 520-628-1553 or 800-346-7265.

ANCESTRAL INTRIGUE

As you can deduce from my name, I read with great interest your article on the "John Crehore" house ["A New England Wonder," July/August]. He was a third generation Crehore, and I am a 10th generation. Our family history lists several other Crehore homes in Milton. I'd appreciate hearing from anyone interested in, or knowledgeable of, Crehore history. [E-mail, CCreshay@aol.com]

CHARLES M. H. CREHORE, *Paradise Valley, AZ*

MISTAKE OF THE MILLENNIUM

Like Bill Boland ["Letters," July/August], I hate to quibble, but I am a stickler for accuracy. Bill is off by one year regarding the beginning of the millennium. The current millennium, a period of 1,000 years, will not be completed until December 31, 2000. Therefore, the next millennium begins January 1, 2001.

MARK A. MORTENSEN, *Quakertown, NJ*

punch list

***definition:** a list of items incorrectly done or remaining to be finished on a construction job*

- In the Fall Maintenance section of the September/October issue, we omitted the name of the icon illustrator: Nigel Holmes.
- The cutaway filter and cryptosporidium photograph were incorrectly credited as "Pure and Not So Simple" [May/June]. Water filter manufacturer Kinetico provided both: Kinetico Inc., Quality Water Systems, 10845 Kinsman Road, Newbury, OH 44065; 216-564-9111 or 800-944-WATER. Web site: http://www.kinetico.com
- Highly detailed plans for the *Life* magazine dream house, designed by Taliesin Architects and written about in the September/October "Extras" column of *This Old House*, are available for $500 through a *Life* subsidiary. Call 800-950-7210.

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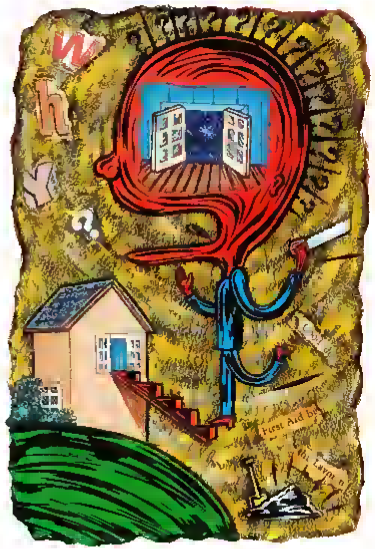
OFF THE WALL

BY JEANNE MARIE LASKAS

The previous owners did *what*?



One of the first things I noticed about my new house, which is actually a very old house, was the lovely but peculiar set of French doors topped by dramatic arched windows in the living room. Open these two doors and you go nowhere. Unless you want to break an ankle or a knee. These doors open to air. Underneath the air—I mean, way underneath—is my front yard. There is a 5-foot drop from the floor to the ground.

It got me thinking about the people who lived in this house before I did. "What," I said to my fiancé, Alex, who was himself puzzled by the doors-to-nowhere, "what do you suppose they were thinking?"

More and more I've been doing this, trying to come up with the stories that will somehow explain the virtually inexplicable decisions made by all the previous owners of my house in rural southwestern Pennsylvania.

What, for instance, am I to make of the light fixture in the dining room? This is the kind intended to hold a fluorescent bulb. The first time I noticed this light fixture, I thought, "Well, that is a very ugly thing." But that wasn't the point. This fixture hung on the ceiling, about 6 inches from the exterior wall. I thought, "Well, that is a very

ILLUSTRATION BY HUNGRY DOG STUDIO

odd place for a flourescent light fixture." But that wasn't the point either. This fixture had no wiring attached to it. No electricity going in. No electricity going out. Was this a sculpture of some sort? Fluorescent light-fixture art?

"What," I said to Alex, who was himself dumbfounded by the fixture, "what were they *thinking*?" (You try to imagine the story. Wife goes to Home Depot and sees fluorescent light fixtures on sale, brings one home. Husband grumbles, he does not feel like hooking the darn thing up. He wants to have a beer and scratch his stomach and watch the game. So he quickly hangs the fixture on the ceiling, hoping wife won't notice it doesn't actually work.)

This light fixture had no wiring attached. No electricity going in. No electricity going out. Was this a sculpture of some sort?

Alex took the light fixture off the ceiling. "There," he said. Then he set out to solve the French door situation. He got out his measuring tape and went zip zip zip, making calculations for a set of stringers. He planned to bridge the doors to-nowhere to somewhere with his own specially designed staircase.

A noble enough pursuit. But I was busy developing a fascination with the lives of the people who had previously owned my house. There was, for example, the matter of water filtration. I mean, I'm not one to defend mineral deposits or, for certain, microscopic bacteria. But an entire water filtration *room*? With colorful tubes winding around bubbling and gurgling tanks that could easily fool guests into thinking we were brewing up chemical-warfare compounds for the Michigan Militia?

At least the previous owners were kind enough to leave us a few drawers full of instruction manuals for this elaborate apparatus. And I'm telling you I really did not sit and wonder what these people were thinking—not until I contrasted their obsession for clean water with their notable indifference toward clean air.

There was no exhaust fan in the bathroom. No window to open. No way to get fresh air. No nothing.

"What," Alex said, on discovering this, "what in the name of raw sewage were they *thinking*?"

The exhaust fan situation had been particularly disturbing to him—especially after he went and installed the wrong kind of fan and ended up having to rip it out and start all over again. But anyway. Let's talk bedrooms. If you were going to add an extra bedroom to your house, what would possess you to put it in a place accessable only through the dining room? And if you were to add a secondary breaker box that would bring new wiring to one wing of your house, why would you place the service panel in the center of an inside wall where there is no access to it?

I know, you cannot answer these questions. You have your own house full of puzzles. Well, I should tell you how Alex's steps to-nowhere project turned out. He called me outside to look.

"Um," I said. The bottom step was a good 2 feet off the ground.

"Hmm," he said and grudgingly agreed that he needed to rip the whole thing apart and start over with a new, longer set of stringers. He did. I came back.

"Um," I said. "A pretty big step there." The new bottom step was still 2 feet off the ground. It was at this point that we both noticed the problem: a hill. If you build steps down the side of a hill, there can be no landing. Not until you reach the very bottom of the hill. Alex and I looked down. The bottom of the hill was about 50 yards away, in the pond.

"Um," he said. He would have to do something about this. The phone rang. I ran in to get it.

It was my friend Vince, who calls a lot because he is also just moving into a new house that is actually a very old house. He said he wanted some advice on gas log fireplaces, knowing I had some experience with them. I asked him about the condition of his chimney.

"The previous owners closed it up," he said.

"Can you open it?" I asked. He went up to the roof to look while I hung on. He came back and bellowed, "What in the heck were these dolts *thinking*?"

The chimney was not only closed up but also cut off and covered with plywood and shingles.

"I'm trying to imagine the conversation," Vince said. "'Hey, honey, what do you want to do tonight?' 'I don't know, sweetie, how about we chop off the chimney and put shingles over it and ruin anyone's chance of ever having a fireplace here?'"

He was upset—I could tell. I said, "Vince, you're upset."

He went on. It wasn't enough, he said, that there was a toilet placed so close to the wall that you had to sit sidesaddle. It wasn't enough, he said, that the perfectly nice ceramic tile kitchen floor was covered with ... blue indoor-outdoor carpeting. Not that the carpeting was glued to the tile.

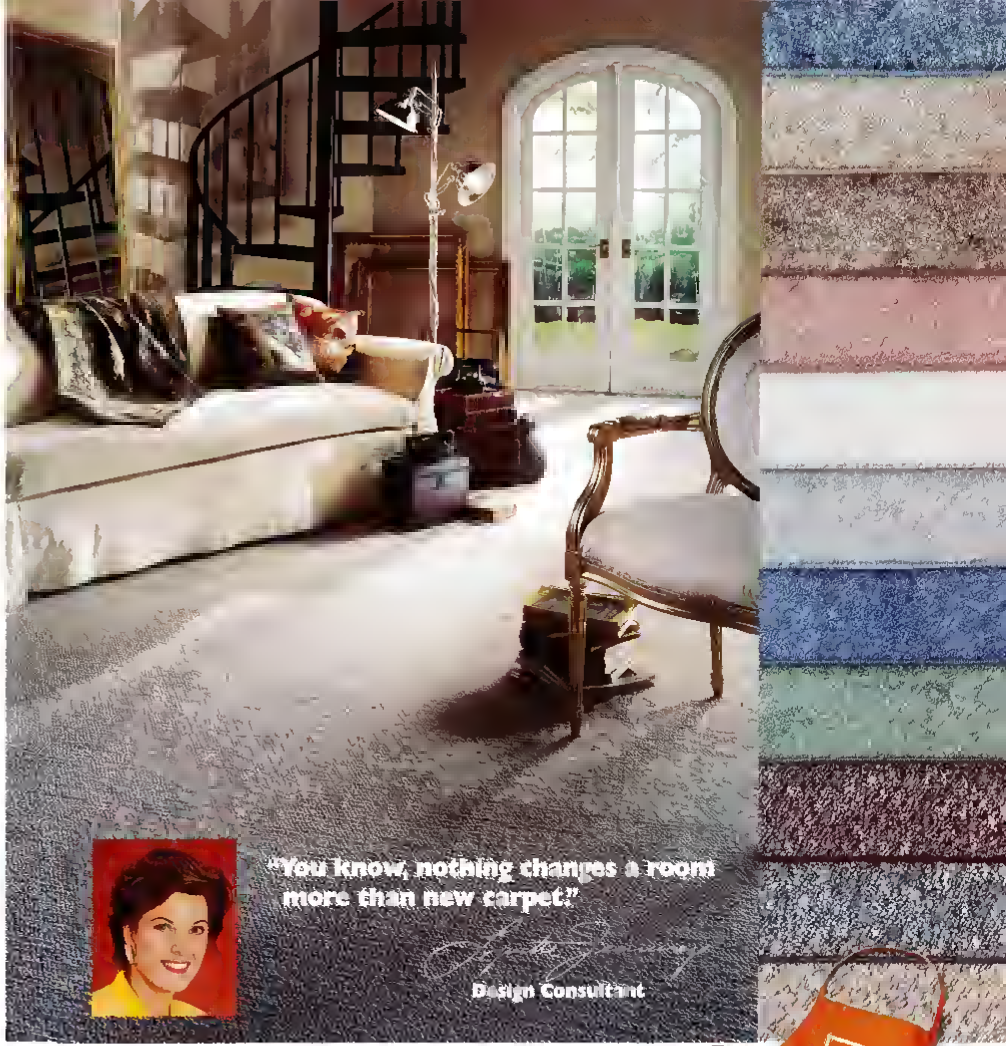
"No, it wasn't enough!" he said. "Now they have to shingle over the chimney too." Alex grumbled a little more while I made a lot of empathy noises.

These discoveries are not easy to take. The decisions of previous owners are the glaring reminders that make one face the unspoken truth. Most houses are hand-me-downs. All that fancy financing you did and all those dreams you had of starting your life over in a new home, a new place, a new era are true only up to a point. In fact, you are moving into someone else's *old* era. Someone else's decisions. Someone else's problem-solving techniques. Someone else's hopes and, let's face it, someone else's dirt (which is always so much dirtier than your own dirt).

Alex hollered. He wanted me to see his solution to the steps-to-nowhere. With his own hands, he had built a little somewhere: a landing. A terrace of sorts, a mini-patio. Well, it was a lump of dirt piled up under the bottom step.

"Um," I said, distracted by a clamor in my head. I was hearing the future. I was hearing strangers. They were standing on this spot near the hill in my yard long after I was dead and gone. They were looking at Alex's landing terrace-patio lump of dirt, and they had their lips curled up.

They were saying, "What were they *thinking*?" ■



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(extras)

Simian Solution

"Most PVC cements are noxious and vile—about two-thirds of the can is a warning label. The fumes almost knock you out," says Mark Singer, president of the Gorilla Group, who plans to introduce an alternative in January. His water miscible formula, which he calls Gorilla PVC, is virtually odorless and fumeless, requires no primer and has a flash point of 203 degrees Fahrenheit. The patented formula—developed in Europe, where the glue has been used for three years—is actually powdered PVC dissolved in a nontoxic base. Once applied to the mating joints, the liquid evaporates, leaving behind only solid PVC.

So Long, Castle Hassle

A billiards room where the same pictures have hung since the 1860s, suites of Victorian furniture, a glassed-in loggia with a sweeping view of the Sheepscot River—these are among the jewels Jane S. Tucker inherited 33 years ago when she took on the stewardship of her family's ancestral home in Wiscasset, Maine. When she moved in, the 17-room Castle Tucker was so dilapidated that local kids called it haunted. Tucker banished the ghosts with a new roof and paint, performing much of the day-to-day maintenance herself. Rather than modernize the interior, however, she chose to preserve it. She closed off the three-story main section during the winter, living in three heated rooms at the back. In the summer, she opened the door to vacationers who asked to peek inside. Eventually, she began giving formal tours, with admission fees going toward an endowment for upkeep. She had planned to will the house and money to the Society for the Preservation of New England Antiquities, but decided this year there was no reason to wait and handed it over. Now she can pass on all she's learned to the next generation of caretakers.

Although Castle Tucker has been renovated, the inside has not changed since Jane S. Tucker's grandfather went bankrupt in a railroad financing venture in 1871.

"It's foolish to keep on owning a house this size when you're my age—almost 80," says Jane S. Tucker.

CHRISTMAS TREE PHOTOS BY KELLER AND KELLER. CASTLE TUCKER BY ERIAN VANDEN BERGE

Norm Abram and his daughter Lindsey, make their annual pilgrimage to the Christmas tree farm. Norm cuts Lindsey's favorite with a bow saw and they tie the tree to the car top (in lieu of a sleigh). Once home, he crosscuts the bottom so the tree can drink.

Tree for All

Every Christmas, Lindsey Abram picks out the tallest and fullest possible tree for her family's living room—to the consternation of her father, *This Old House* master carpenter Norm Abram, who fells the tree, then usually ends up "trimming 8 or 10 inches off the bottom." In many national forests, you too can cut and cart away some holiday cheer for as little as $5. Purchase permits from a local ranger station and start scoping the ideal tree after Thanksgiving. (Or next year, do like hunters in the West: early in the season they tie ribbons to their chosen tree, returning to chop closer to Christmas.) Once you get home, don't make the mistake of thinking your work is done. Freshly cut trees are still alive—sap seals the trunk, which you should trim straight across and stick in water immediately. Forget the ketchup and corn syrup concoctions, and don't bother soaking the stump in vodka; plain tap water is best (1 quart per trunk diameter inch). But watch the reservoir level. Even under ideal conditions—70 degrees Fahrenheit with 40 percent humidity—trees can get dehydrated in as few as four hours and may stop drinking for good. To check for freshness, bend a needle or two. They should produce a moist snap, like a carrot stick.

(extras)

WEB

Ironically, hand-tool aficionados are all over the electronic frontier

www.cs cmu edu/~elf/en

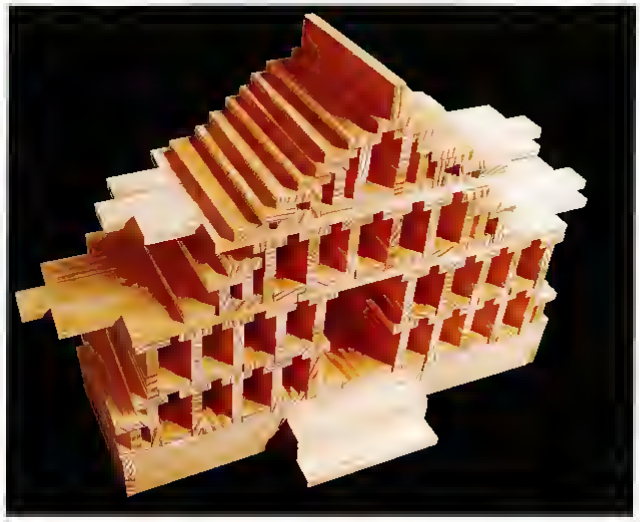
The Electronic Neanderthal is both an oxymoron and a Web site for woodworkers who believe electric power tools come from the devil's workshop and who love using hand tools and traditional methods to make sawdust. Besides comprehensive resource guides for unusual wood, tools and supplies, this site offers information on books, events, organizations and places to visit (both real and virtual). For example, to find out the vintage of your bench plane, play the dating game on Jay Sutherland's "page o' lore."

www.lucf.ndiana.edu/~brown/hyplan/wood.html

WWW WoodWorking on the World Wide Web provides dozens of links to related sites, as well as listing shareware programs of interest to woodworkers, including download and setup assistance. Among the recent offerings: programs calculating job costs, dimension conversions and wood expansion and contraction.

www.entiquetools.com

The virtual Museum of Woodworking Tools provides a "knowledge base of museum quality tools and techniques that once existed but are now gone," says curator Robert Mathison. Various "galleries" feature exhibits on specific tools, and in the future the site will provide reference material from old catalogs and other ephemera upon request.



Plankety Planks

Each Kapla block is a perfectly balanced rectangle, a 4⅝-by-1-by-¼-inch wisp of pine sanded to a velvety finish—and maddeningly simple. The challenge: to build ever more grandiose "pixie plank" sculptures without the aid of glue, fasteners, or pretty geegaws. A teetering Kapla dinosaur or mind-bending spiral is a triumph over sneezes, jitters, gravity and, well, pixies. Eventually, though, what goes up must come tumbling down. "Destruction," notes the brochure, "is part of the game."

Hubbies for Hire

If the man of the house won't do anything around the house, don't nag him—replace him. At least for a few hours. "Today's Mr. Right isn't necessarily Mr. Fix-It," says Katie Warren Jr. of Portland, Maine, whose Rent a Husband is for anybody who needs a lawn mowed, garage cleaned or leaky faucet fixed (for $20 to $25 an hour). Averaging 120 calls a week so far, he's negotiating franchise agreements nationwide. He boasts a "tall, dark and handy" talent pool, although a few hand men, he concedes, may be short, paunchy and balding. "Still, they're all capable."

HOUSE OF BLOCKS AND SHOWS BY JOSHUA MEHIGAN; RENT-A-HUSBAND BY JOE CAMPANELLA/PLAYBOY BY HELLER AND KEFFEE

BOOKS

WORDS ON WOOD

From country gazebos erected out of gnarled lodgepoles to meticulously constructed built-in trestle tables, three new books explore wood's versatility. *Rustic Garden Architecture* by Ralph Kylloe is a pictorial ode to what one can accomplish with bark, branches, logs and vines. Kylloe, a Tufts University professor, covers the rustic crafts tradition from earliest times to turn-of-the-century Adirondack boathouses to modern-day settees. • A quick flip through *Built-In Furniture* is enough to make you start scrutinizing your own house for underused nooks that might make excellent spots for sly storage cabinets, dumbwaiters or bookcases. Besides providing handsome photos of these pieces seamlessly integrated into the surrounding architecture, Jim Tolpin, a woodworker and writer in Port Townsend, Washington, illustrates the clever designs through simple drawings. • *Wooden Houses* by architecture writer Judith Miller covers a broader scope, although she devotes much of the book to log structures. Miller also provides interesting historical insights and examples from Aspen to Auckland—making this tome more than just a pretty addition to the coffee table.

If You Could Read My Grind

The angle grinder does do—grind, pull back and check the surface, then grind a bit more and pull back again—may be a thing of the past thanks to a new line of abrasive discs and matching backing pads for angle grinders. The fiber-backed discs are more triangular than perfectly round, and feature three evenly spaced holes at mid-radius. As the disc spins, its edges virtually disappear and the holes become one wide transparent ring—like an inside-out doughnut. "I didn't think it would work," says *This Old House* contractor Tom Silva, who fine-tuned an iron bracket with the invention. "But it did—I saw exactly what I was grinding without moving the disc on and off the metal." Tom's excavator then borrowed the tool to bevel the ends of a 6-inch plastic drainpipe and discovered that the work was indeed less of a grind.

Spring Green

Daffodils planted in drifts at the edge of a lawn not only look like they sprouted there naturally but also appear all the more brilliant against the verdant shoots of spring. For a similar effect in daffodils potted this fall, scatter a handful of grass seeds on top of the soil when the leaves appear.

> "The physician can bury his mistakes, but the architect can only advise his clients to plant vines."
> —Frank Lloyd Wright

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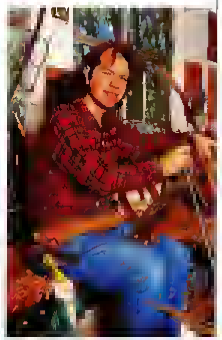
extras

EVENTS & APPEARANCES

STEVE THOMAS
- Nov. 5—Wenham Museum, Wenham, MA, 3 p.m.; 508-468-2377
- Nov. 8—Borders Books & Music South Portland, ME, 1 p.m.; 207 775 6110
- Nov. 15—Stroudwater Books, Portsmouth, NH, (time TBA) 603 433 7168

NORM ABRAM
- Nov. 15—Home Depot, Nashua, NH, (time TBA) 603 891-4300



Barry "Woody" Phillips has a tune up

One Last Fling

Looking for a fun way to demolish your house? Consider the medieval castle-crusher known as the trebuchet. The Timber Framers Guild of North America and the Virginia Military Institute recently built a fearsome reproduction of this catapult-like weapon, which they deployed with gusto at a June TFG conference in Amherst, Massachusetts. First, six cadets cranked a windlass attached to a base, bringing one end of a 24-foot hemlock throwing arm almost to the ground and hoisting a 9-ton box of gravel—the counterweight—that swung from the other end. They then attached a trigger (3 feet of heavy chain with a pin in a shackle) to the arm along with a hemp sling holding a watermelon-sized, 100-pound rock. "Fire in the hole!" yelled a VMI professor, and three timber framers strained to pull the firing pin. Whoosh! The rock hurtled 100 feet up into the air, hanging there for about three seconds—which might seem like eternity if you were in a castle watching it come toward you—then thudded to the ground 600 feet away. Earlier they'd tried flinging bags of limestone, but the forces involved (about 15Gs) ripped the bags apart. "Well," said one timber framer, "at least we fertilized the lawn. We have to find some kind of socially acceptable use for this thing."

> "There is nothing more pitiful than a house broke down at the side of a road."
>
> —Rick Bragg, on moving a house

Dance of the Sugarplum Anvil

Folk musician and cellist Barry "Woody" Phillips grew up in a family of floor layers, but it wasn't until 1993, when he was building his Shaker-style den in Santa Cruz, California, that he began hearing music in the clanks, clatters, whirs and bangs of his tools. Over three months, he hammered out *A Toolbox Christmas*, 13 traditional holiday songs that combine the dulcet tones of a pneumatic nailer and an English horn ("The Twelve Days of Christmas"), create harmonies between a drill press and power planer ("Good King Wenceslas"), and explore the musicality of duct tape and nails ("Deck the Halls"). And don't let it be said that Phillips didn't suffer for his art. "The constant repetition of noise drove me insane every other day."

TOOL MUSICIAN BY CHRISTIE ALCHIN. TREBUCHET COURTESY OF TIMBER FRAMERS GUILD OF N. AMERICA; MEISSERTAP ODRIES-BETTMANN. TREE ANTENNA: JENNIFER NELSON. GATE LATCH: STEVE THOMAS; WINTER VEGGIES: KELLER AND KELLER

A crane lifts a camouflaged cellular phone tower into place in Franklin Lakes, New Jersey.

Branching Out

Residents of Franklin Lakes, New Jersey, who were baffled when an 85-foot-tall white pine appeared in their midst overnight, may have been even more shocked to discover that the tree was actually a cellular antenna tower. Arcnet, an architecture company, developed the tree five years ago with three other companies, among them Larson Inc., which makes props for such clients as DisneyWorld. Because the trees cost $1,200 a foot—three times more than monopole antennae—only about 50 have gone up around the country. This tree, however, may prove an economical turning point. Three wireless communications companies have antennae hidden among the branches—the first time competitors have hugged a tree together to cut costs.

Epoxy resin molded like bark coats a steel shaft, and plastic branches fasten on.

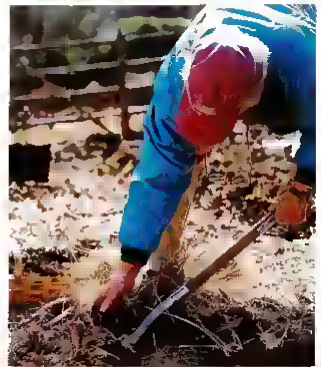
Gateway of the West

To corral strings of mules in the Flathead River country of northern Montana, pack leaders with the U.S. Forest Service ride ahead and, without dismounting, open the gate by swiveling the ring on this handwrought gate latch. After the rider has led the beasts through, a gentle nudge closes the gate, which latches itself. This ingenious device—which has foiled all but the cleverest of mules—caught the fancy of our roving photographer Steve Thomas on a recent wilderness expedition. "The pin inside the ring is a simple, elegant design that would work in a suburban yard where you need a gate to swing in or out and keep small kids or dogs in."

Cache Crop

Homesteaders once stored winter vegetables in root cellars, but few houses feature those nowadays. Russ Morash, the executive producer of *This Old House*, stores his carrots and parsnips right in the garden. He harvests the crops in late fall, then piles them into one bed. To keep them from freezing, he covers the cache with soil, a thick layer of salt marsh hay and a plastic tarp. He likes this hay because it's free of weed seeds, but any kind of straw or even fallen leaves work. When it's time for dinner, Morash just reaches under the straw and digs out the veggie du jour.

Russ Morash turns the beet around.



FOR SOURCES, SEE DIRECTORY—PAGES 182

Being Nice to Mice

Reluctant to set up in-house death chambers, many homeowners opt for "humane" mousetraps that ensnare—but don't kill—the invading critters. Nice idea, but what do you do when you catch one? Although mice rarely have rabies, rarely bite and are usually terrified of people, you may want to don heavy gardening gloves before

opening the hatch. Release the prisoner in a wooded area as far as possible from your house. Liberated mice typically scram and once ensconced in a new home tend not to venture too far in any direction. If you're tempted to make a pet out of the mouse, think again. Mice are vermin, carriers of disease and parasites. They'll be happier outdoors. And on the subject of being humane, remember that, deprived of food, a mouse can live for only one to three days, so check your traps often.

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COUNTER INTELLIGENCE

Why do so many people love a solid surface?

Even before *The Graduate*'s Ben Braddock was told to look for his future in plastics, DuPont chemist Don Slocum had a polymer vision of his own. In late 1963, Slocum and a band of fellow scientists were assigned to find uses for the company's plastic technologies in the nation's kitchens and bathrooms. Working in a makeshift lab in an abandoned Delaware tire plant, they combined DuPont's acrylic resins with a filler to create a new kind of countertop material that was repairable, stain and germ resistant, and solid, unlike the popular laminates pasted over chipboard. "We knew right away we had something really special," remembers Slocum, who named the new product Corian, after his daughter, Carrie Ann.

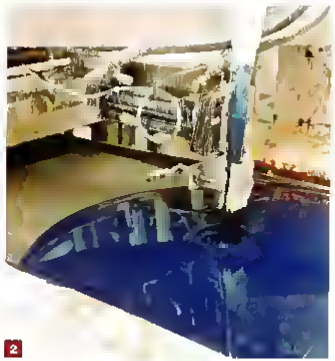
You can't do this with granite. Doug Ward and George Moreo heft a one-piece, 200-pound counter with integral sink atop the cabinets in this Montclair, N.J., kitchen. The two sheets of Corian and its sink were glued together with a two-part adhesive that, when sanded, makes the seam, below, disappear.

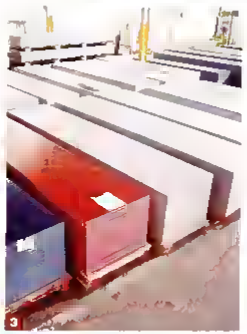
Did they ever. Thirty-four years later, minus the fiber, solid surfacing (the generic name for Slocum's creation) has become a $1.1 billion business with sales increasing 20 percent annually. The National Kitchen and Bath Association reports that solid surfacing was the counter covering of choice in about 40 percent of kitchens and baths built or remodeled in 1996, beating out marble, granite, tile and laminates like Formica. "The factories can't even keep up with countertop demand," says Mike Duggan, editor of *SolidSurface Magazine*, the industry's trade journal. "Everyone is in full production."

Although DuPont Corian still rules some 75 to 80 percent of the solid surface industry, since Slocum's original patent ran out in the mid 1980s four other national brands—Avonite, Wilsonart's Gibraltar, Nevamar's Fountainhead and Formica's Surell—along with some 160 regional manufacturers—have pushed into the market. The bulk of the business is still countertops, but the material is also turning up in everything from furniture and flooring to golf clubs and pet bowls.

So what is solid surfacing? Essentially, it's a combination of two ingredients: a filler, most often alumina trihydrate (ATH), a white powder refined from bauxite ore, and a clear resin binder, either

PHOTOGRAPHS BY KOLIN SMITH





How It's Made

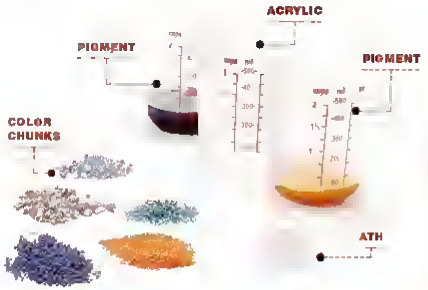
1. A cursory glance around the factory, with its silos of sugar-fine white powder and clear syrup, its bins of colored sprinkles and its warm ovens, might make one think its chief product is candy. One whiff says otherwise. It isn't confections they're cooking, it's acrylic, the stuff of Corian counters and sinks. The Corian plant in Buffalo, New York, is cooking day and night, seven days a week, to meet customer demand. Supply manager Dave Nickles is the man who helps keep the Corian flowing. At his command are fleets of railroad tank and hopper cars, each loaded with 150,000 pounds of Corian's raw ingredients: pure powdered bauxite or syrupy liquid acrylic. "We keep the railroad plenty busy," Nickles says. Bauxite and acrylic come together inside a giant blender—two parts powder to one part acrylic by weight—where they're mixed into a viscous batter with pigments, colored particles and catalyst.

2. The liquid mix pours nonstop onto a stainless-steel casting belt and heads into a long oven. As it moves along, the plastic is kept at a cozy 200-300 degrees, which induces the molecules to cross-link with each other. About 45 minutes after hitting the belt, a ribbon of solid, perfectly smooth plastic emerges.

3. Three water-cooled, diamond-tipped saws cut it into 30-inch-wide sheets, then it's stacked for shipping. To Nickles, blending, pouring and baking Corian is no big deal. Much of the line is computerized. The hard part, he says, "is keeping up with all the colors that the marketing folks want us to make"—67 at last count.

Ingredients

In a typical batch of solid surfacing, alumina trihydrate (ATH) and a clear polyester or acrylic main make up 98 percent of the product. The remainder is composed of pigments and dyes, which add color, and crushed bits of the colored solid surfacing, which create the dirt-hiding speckles.



acrylic or polyester or a mixture of the two. The colors and speckles are created by adding pigments and tiny bits of the finished product itself. When filler and binder come into contact, they chemically meld into a solid that's waterproof, fireproof, UV resistant, hard enough to resist denting and chipping yet forgiving enough to be shaped and finished with regular woodworking tools.

The same chemical reaction can be used to join pieces together with virtually invisible seams, making possible accent edging, inlays and completely integral sinks and backsplashes. Being nonporous, solid surfacing resists stains, mold and bacterial growth. And because it is the same material throughout, small scratches and burns can simply be buffed out with fine sandpaper or a Scotchbrite pad.

Still, solid surfacing isn't kryptonite. For all its good looks and

Not all solid surfacing comes in sheets. Workers inject the catalyzed liquid mix into a heated mold for 30 minutes or so, then pop out a sink like an oversize Belgian waffle.

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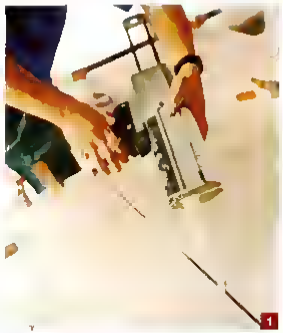
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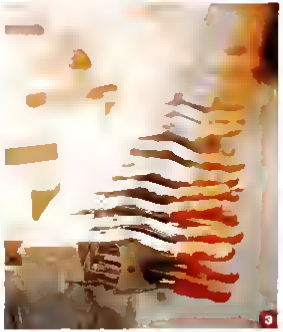
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A Countertop Is Born

1. At Corinthian Products, a fabrication shop in Allendale, New Jersey, Mike Trotter injects a seam with a two-part glue. His double-barreled caulking gun automatically mixes catalyst and resin in the nozzle.
2. Before the glue sets in about 45 minutes, Trotter bar-clamps the sheets together and taps them flush with a dead-blow hammer.
3. Strips glued to the countertop's front edge give the illusion of thickness. An army of clamps ensures a tight bond.
4. After the sink is stuck to the counter, Trotter routs the edges. Solid surfacing can be cut and shaped using off-the-shelf woodworking tools fitted with carbide-tipped bits and blades.
5. The countertop's top and edges are smoothed with a random-orbit sander and 220-grit sandpaper. A final hand polishing with an extra-fine Scotchbrite pad produces a low-gloss matte finish that's easy to care for.

easy care, it is, after all, a plastic, it doesn't have the heat resistance of granite or tile. While brief contact with a hot saucepan isn't likely to cause damage, prolonged exposure can leave an indelible white scorch mark (which can be fixed with a patch), or cause the counter to crack. "It sounds like a shot [when it cracks]," says Ed Wright, owner of INcounters, in Abilene, Texas. Like most fabricators, Wright routinely leaves a piece of leftover countertop with the consumer so any future repairs will be color matched. "Solid surfacing expands and contracts based on temperature the way wood does based on water," Wright says. "You have to treat it very carefully when it comes to heat."

It isn't cheap, either. Countertops cost between $100 and $150 a linear foot installed, about three times the cost of Formica and comparable to granite or marble. If you add the integral solid-surface sink—as most consumers do—the cost jumps another $600 to $800. Even so, fabricators say they're serving more middle-income clients. "It used to be a product reserved for the high-end homeowners; now people in less expensive homes are demanding it," says Wright. "They say, 'My friend has it; my neighbor has it. That's what I want.'"

Some manufacturers hope to win even more converts with new lower-priced products like ⅛-inch-thick solid-surface veneer or 1/16-inch-thick spray-on surfacing. Applied over fiber board and seamed with the same adhesive, the veneers have the appearance and features of solid surfacing—including integral sinks—at considerably less cost, about $75 to $80 a linear foot. "As far as looks and performance, it's the same," says Alison DeMattino, public relations manager for Wilsonart, which introduced the Gibraltar solid-surface veneer nationally in 1986. "The only difference is you can't do some of the high-end features, like routed-in drainboards, carved edges and inlays."

And you can't make deep cuts in a veneer, says *This Old House* contractor Tom Silva. "It's like using a wood-veneer floor. You can sand it so many times and then you're through the

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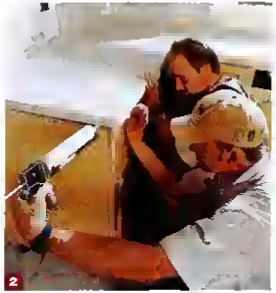

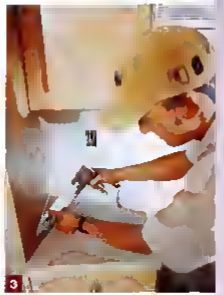

New Countertop in an Hour

Because much of the work has been done in the shop, installing a solid-surface countertop in the home is speedy and simple
1. *Once the counter is in place atop the cabinets, installer Doug Ward cuts the faucet openings in the sink top with a hole saw. A plumber will come in later to hook up the fixtures and drain.*
2. *While George Moreo lifts the countertop, Ward guns a thin bead of silicone between the top and the cabinets. Jacking the top into place*
3. *To allow the solid-surfacing space to expand and contract with temperature changes, installers must leave a ⅛-inch space between the countertop and surrounding walls. Ward seals the gap with silicone. From start to finish, the entire process takes about an hour.*

veneer." Tom says anyone who scrubs a countertop that much would be better off with granite.

Though he has yet to use it, Tom thinks a veneer could be "a great alternative for someone who can't afford regular solid surfacing." Still, some who work with *solid* solid surfacing remain wary of the cut-rate newcomers. "It ought to be less expensive, it's 75 percent less material," says INcounters's Wright. "Logic tells you that if it's ¼-inch thick, it's not going to perform the same as ½-inch thick material. We think the jury is still out on it."

Fabricators also disagree over the merits of the various ½-inch brands as well. Although they look and cost about the same, there are some significant chemical differences in their makeup. Some use an acrylic resin as their binder. Others use polyester, or a poly/acrylic blend. Avonite has a product that omits the ATH filler altogether in favor of pure polyester resin, which permits strikingly deep, neat translucent colors and larger chips of color. Other fabricators say the acrylic-based products, while not as lustrous, are stronger and easier to work with. Polyester resists acetone and citric acids better than acrylics, but if it has no ATH, which acts as a fire retardant, it can burn.

So how to choose? Often it comes down to aesthetics. Solid white, the most popular color, is also the cheapest and the least likely to show scratches, until dirt gets in. Speckles, on the other hand, camouflage smudges and crumbs. "They're all basically the same material," says fabricator Dani Homrich of Dani Designs in Rochester Hills, Michigan. "Pick a color you're going to love living with."

And a good countertop maker. Most manufacturers require fabricators to be certified before allowing them to work with a product. (Some warranties cover installation; others do not.) And although DuPont Corian does offer some prefab vanity tops and shower stalls, most consumers still turn to the pros. "We've found we could make a custom one for about the same price [as a do-it-yourself project]," says INcounters's Ed Wright, "and when you're spending that kind of money, you want it done right." ■

Edge Decor

Some like their countertops plain; others go for fancy edge treatments or inlays. To make an inlay, the fabricator routs a design into the surfacing, then squeezes colored resin into the depressions. After the resin cures, the top is sanded smooth. The process is time-consuming and expensive, but the results can be dazzling.

COUNTERTOP CORNERS BY BENJAMIN OLIVER

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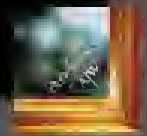

OF CHAIRS AHD CELLOS

Solid surfacing holds its shape at room temperature, but when heated to 325 degrees, it droops like a Salvador Dali watch. Cool it again and it will hold that shape. Some fabricators take advantage of this thermoforming property—and of the material's general toughness—to make furniture, walls, floors and building facades. Some others push the envelope even further.

Retro Seat

Created by architect Matthew Hoey, this slinky lounge chair features thermoformed Corian seat, back and armrests attached to a tubular stainless-steel frame.

Colorful Cabinet

This mobile workstation, designed by architect Gaetano Pesce, was made from several sheets of Corian.

Wood-Free Sound

Musician and fabricator Nathan Carlson spent 300 hours thermoforming and assembling a playable, full-scale model of his cello out of Avonite.

Perhaps you wondered. What else is it good for?

Not long after DuPont chemist Don Slocum invented Corian as a kitchen countertop material, he decided to use it as window trim in his lab. It's still there, more than three decades later. "That material hasn't changed an iota," he says. "It looks as good as the day it went up." Slocum's enthusiasm for it hasn't changed either: "The potential still has not been tapped."

Mike Duggan of *SolidSurface Magazine* agrees. "The applications for solid surfacing are exploding," he says. One cutting-edge use is as a cladding for commercial buildings, instead of stone or metal. And why not? It doesn't rust, ultraviolet rays do little damage and it seems impervious to acid rain. What happens in a fire? A hot pot in a kitchen will crack it. Duggan says it won't burn, but on a building, in the midst of a blaze, it will probably soften and sag—an interesting sight to imagine.

On the home front, Slocum thinks it makes a great window sill because it's so unaffected by sun or water. But a solid surface sill needs a ⅛-inch gap on each side for expansion and contraction.

Seamless and easy to maintain, solid surfacing has proven itself a good material for shower stalls and tub surrounds, if you can swallow the price: about $2,000 for a 96-inch tall, three-sided unit—and don't mind the leak of dozens of square feet of plastic.

And what do fabricators who work with solid surfacing every day do with the stuff in their own houses? Several we spoke with have made their dining room tables out of it.

CHAIR BY BENJAMIN OLIVER. CELLO BY CHRISTOPHER AMRON STURROS. WALL UNIT BY GAETANO PESCE

FOR SOURCES, SEE DIRECTORY—PAGE 153

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BY JOE CARTER

Taking a break from their noisy work, the Duct Dusters crew, top left, doffs their respirators for a breath of fresh air. Sixty years of undisturbed accumulation, right, have left this duct lined with grime. One handful, bottom left, contains billions of particles, everything from dirt to mold spores to skin cells.

DIRTY DUCTS

Something else to worry about

The moment Joan and Emanuel Sidler walked into their house after a six-week vacation, they were greeted by an unwelcome surprise: the foul odor of dead animal. Its stench permeated every room of their Scarsdale, New York, home, so they suspected immediately that the critter had expired in their ductwork. Joan picked up the phone and began searching for someone to get rid of the smell.

A couple of calls and a few days later, Frank Troetti, the owner of Duct Dusters, was in her house to work up an estimate. Going from room to room, removing grilles and shining his flashlight into the openings, he saw no carcass, but he did find another problem: thick gobs of dust clinging to the sheet-metal walls of all the ducts in the house. They had not been cleaned for 60 years. "When he showed me the dust," Joan recalls, "I knew it had to be done."

PHOTOGRAPHS BY MICHAEL GRIMM

THE CLEAN MACHINE

Super Sucker

The heavy artillery of duct cleaning, the vacuum truck, guarantees no dust will get loose in the house. With its 350-hp engine working at a maximum 2,000 rpms, it has a suction equivalent to 130 top-of-the-line household vacs. On one job, it nearly swallowed a customer's cat.

Boring Work

In the basement, a special sheet metal bit cuts an access hole for the ribbed vacuum hose. As the job progresses, the hose will be moved from duct to duct to concentrate the vacuum's power. For smaller ducts like these, the crew uses a four-inch hose connected to the big eight-incher. At job's end, all holes are sealed with sheet metal and foil tape.

The Sidlers are not the only homeowners in this predicament. In 80 percent of the houses in this country, heating and air-conditioning ducts run under the floors and inside the walls. A forced-air system consists of a branching network of supply ducts that leads from the furnace to each room, while another maze of return ducts sends air back to the furnace. As the supply ducts blow air into rooms, return ducts inhale airborne dust and lead it back to the blower. If there's sufficient moisture, the dust becomes a breeding ground for allergy-inducing molds, mites and bacteria, which feast undisturbed on incoming detritus and ride through the rest of the house, unhindered by most furnace filters. (See "The Dust Stops Here," page 50.)

Emanuel and Joan Sidler kept a clean house, but their dirty ductwork may have contributed to Joan's breathing problems.

The feat that dirty ducts represent a health threat has created a big demand for duct cleaning. "It's doubled or tripled in the last ten years," says Glenn Fellman, executive director of the National Air Duct Cleaners Association. "There are anywhere from twenty-five hundred to five

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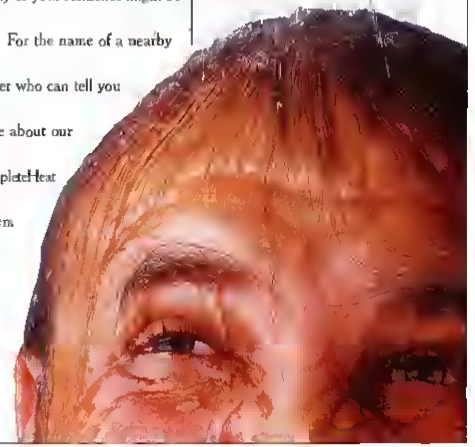

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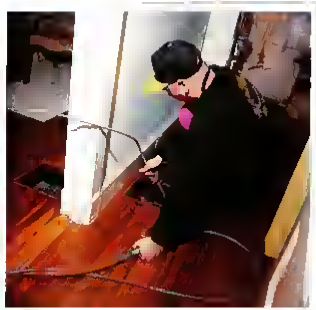
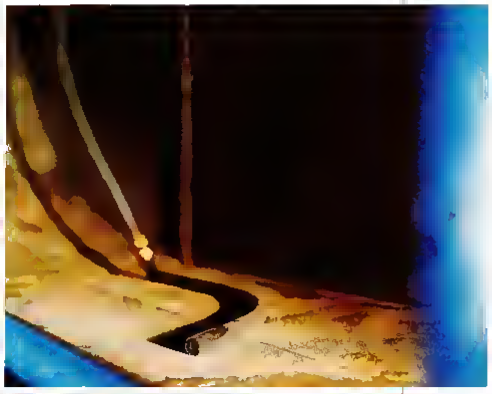


Blow Out

A workman slowly feeds a compressed air line with a viper tip into an open duct. From any register, the flexible plastic line can reach 25 feet into the ductwork. Whatever the whip knocks loose, the truck vacuum whisks away.

Snake Toil

The viper—18 inches of flexible rubber tubing—is one of several air-powered tools for beating and blowing the dust off metal ducts. Ductboard requires less aggressive brushing methods that won't dislodge bits of fiberglass. Ducts with spun fiberglass linings should never be brushed, if vacuuming can't clean them, they'll have to be replaced.



HEPA Dusting

Wearing a respirator, a workman hand-vacuums the heaviest deposits, which typically accumulate close to floor and wall registers. The powerful three hp vac is fitted with a high efficiency particle arrest (HEPA) filter so all the dust stays in the machine. Before removing the grille, he cuts around it with a utility knife to avoid damaging the paint.

thousand full-time duct cleaning companies and lots of part timers." In newspaper and direct-mail advertising, even on their trucks, duct cleaners tout such benefits as cleaner indoor air, longer equipment life, lower energy costs and, often in the boldest type, better health. But right now, there's little scientific evidence to support the cleaners' hype or homeowners' fears.

Last year, in the first study of its kind in the United States, the Environmental Protection Agency analyzed the effects of duct cleaning in nine houses in North Carolina. "We found that using the right techniques improved [the heating and cooling systems'] air flow and overall efficiency," says project head Russell Kulp. "The energy savings over time could pay for the cost of cleaning."

But Kulp didn't find a clear-cut improvement in air quality. "Cleaning had no effect on airborne particle levels," he says. "That's because the biggest source of indoor dust is the infiltration of outdoor dust." Kulp's study also showed that cleaning didn't permanently eradicate mold and bacteria—"They come right back," he says—but it did reduce their numbers. "Cleaning gets rid of the stuff that mold and bacteria grow on,' says Kulp. "And less growth means that less of it gets airborne,' which should help allergy sufferers.

Joan Sidler is one of them. She hadn't been breathing well in recent years and had long suspected that it had something to do with the air in her house. The Sidlers installed an electronic air cleaner in 1974, then seven years ago a doctor diagnosed her as having allergic bronchitis. "I started wheezing a lot," she says, "and I felt lethargic and out of sorts. It got worse in the winter."

A few weeks after his first visit, Troetti's big red Duct Dusters truck pulled into the Sidlers' driveway. The new Ford looks like any tradesman's pickup, but it's really a vacuum cleaner with four wheels and an automatic transmission. Powered by the truck's 350 horsepower V 8, the vacuum inhales 16,000 cubic feet of air

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SEARCH AND SWEEP

Brush Off

The spinning brush is the fine-tooth comb of duct cleaning. It rides on a remote-control, air-powered tractor equipped with a tiny on-board camera. Guided by the TV monitor, inset, Troetti steers the duct rover, moving it forward and backward in its hunt for dust

per minute, about eight times the volume of the most powerful furnace blower made. Stick an arm in the inlet and it feels like you could lose your shirt, your watch and your wedding ring.

To put that power to work, Troetti's crew uncoils a 100 foot-long, 8 inch diameter hose, connecting one end to the vacuum and dragging the other end down to the basement, where they attach it to a freshly cut hole in the system's main return duct. They then stuff foam padding around the blower and the air-conditioner coil to protect them from the soon to be dislodged debris, and they block off registers in the house to concentrate the vacuum's pull.

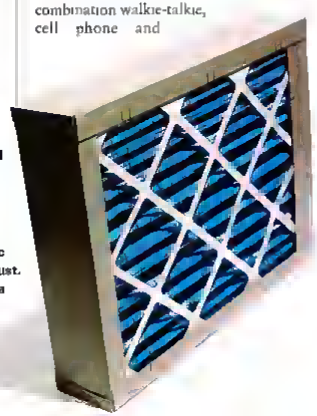
When the vacuum starts, its turbines rev up to a loud whine. At full power, its nine 6-foot-tall filter bags inflate and rise from the top of the truck, its puffy columns all akimbo and swaying. "This is the only way to do it," says Troetti. The duct cleaners' association agrees, its guidelines stipulate the use of an external vacuum source so the dust flies only one way—straight outside. (See "Who You Gonna Call, and When?" page 51.)

And fly it does. Opening an access panel in one duct reveals an endless parade of crud, everything from fat gobs to fine wisps. It seems that 16,000 cubic feet of air per minute would be enough, but it's not. To do a thorough job, Troetti brings out his in duct assault tools: vipers and skippers.

"Joey has the viper up there for you, Wayne!" Troetti yells into his combination walkie-talkie, cell phone and

The Dust Stops Here

"Furnace filters are good for furnaces but no good for people." That's the best James Hanley, a senior environmental scientist at the Research Triangle Institute, can say about the thin, cheap filters used in millions of furnaces. His studies showed the best ones stopped only 20 percent of the dust blowing through the system. Others did nothing. By contrast, two-stage electrostatic precipitators (commonly called electronic filters) and pleated-paper media filters, right, trap more than 95 percent of airborne dust. Both types must be professionally installed—prices range from $250 to $450 for media filters and $550 to $850 for electronic units—and both must be maintained. Media filters have to be replaced—about once a year—at a cost of $30 to $50 each. Electronic filters should be hosed off every month or two.



FILTER BY DARREN HARPER

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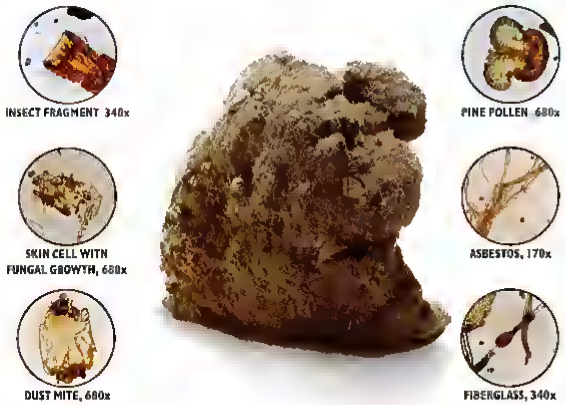
Dissecting Dust

"If it's in your house," says Tom Hopen, "it'll be in your ductwork." Hopen, a chemical microscopist, used a polarizing light microscope to examine a dust ball from a Duct Dusters job. Besides the items shown, he also found clothing fibers, plaster and concrete, soot, photocopy ink and flakes of paint and rust



DUSTBALL BY DARR H HAUSER; PHOTOMICROGRAPHS BY THOMAS HOPEN/MVA, INC

Who You Gonna Call, and When?

When duct bunnies show up under the bed, vacuuming day can't be far off. It's not much different with ducts, says *This Old House* heating expert Richard Trethewey. "A visual inspection is about all you can do," he says. Follow the same steps good duct services use: Pull off some supply and return registers and take a look. If a new furnace is being installed, Richard strongly recommends a duct cleaning at the same time. "The new blower will probably be more powerful than the old one," he says, "and it'll stir up a lot of dust."

Finding a good duct-cleaning contractor is the next step. Like any largely unregulated industry, duct cleaning has attracted its share of charlatans. In some states—Arkansas, California, Florida, Georgia, Michigan and Texas—contractors now need a special duct-cleaning license. For his air-quality research, the EPA's Russell Kulp chose only contractors who belong to the National Air Duct Cleaners Association, which established the industry's standards and guidelines. Association members must carry $500,000 of liability insurance.

When interviewing candidates, check references and insurance, and ask them how they'll do the job. Kulp's study contains a checklist of the steps they should follow (see Directory). Finally, beware of anyone with a long list of tasks and a low price. "Doing it right takes two men eight to ten hours," Kulp says. "It costs $300 to $1,000."

beeper to be heard above the din. "You can go all the way, Wayne. Go ahead!" Stationed at a duct opening with its grille removed, Wayne slowly inserts the viper—a short length of rubber tubing connected to a long coil of gray plastic tubing—into the metal passage. Powered by the truck's air compressor, the rubber slaps the duct walls like a whip gone wild, emitting a 250-pound-per-square-inch stream of air that blows the dust loose. The viper is loud; the skipper—a metal ball on the end of the viper that knocks and blows dust free—is even louder, banging about like a rock in a clothes dryer.

As the day wears on, the crew methodically feeds the viper and skipper down every foot of ductwork, cutting more access holes in the basement ducts for the truck's hose. The vacuum stops only for lunch. A short time after work resumes, someone yells up from the basement: "Hey, Frank! Found it!" A stiff squirrel lies in the narrow gap between a foundation sill and a poorly sealed return duct. A crew member gingerly transfers the remains to a plastic bag and drops it into the nearest garbage can. The air starts to sweeten.

"You name it, I think I've seen it," says Troetti of what he's found on the job. "Marbles, cornflakes, baseball cards. Once we found a skunk nest, and another time there was a twelve-foot snake." Even ducts in new houses have problems. "If the duct openings aren't sealed, the workmen use them like garbage cans," Troetti says. "I've pulled out sawdust, plaster, two-by-fours, nails, bottles and coffee cups."

Finally, the vacuum stops for good, and the neighborhood is peaceful again. Troetti's crew is sealing all the holes they cut in the ducts, replacing all the registers, rolling up hoses and packing away tools. Joan sits at the foot of the main staircase, beaming. The smell is all but gone.

In a couple of months, the Sidlers will go ahead with a long-planned interior repainting, not only to change the color scheme but also to erase the dust stains around registers and in wall and ceiling corners.

Joan's breathing woes will pretty much disappear. "When I clean the filter, the rinse water isn't black anymore, just a little dirty," she says. "I can't tell you how much better I feel. This is one of the biggest blessings I've ever had." ■

FOR SOURCES, SEE DIRECTORY—PAGE 102

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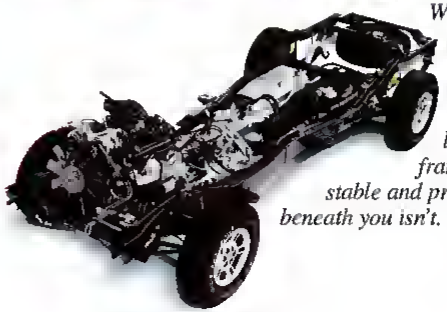

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